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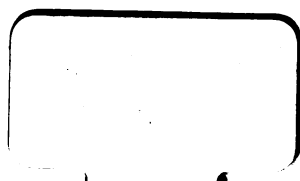
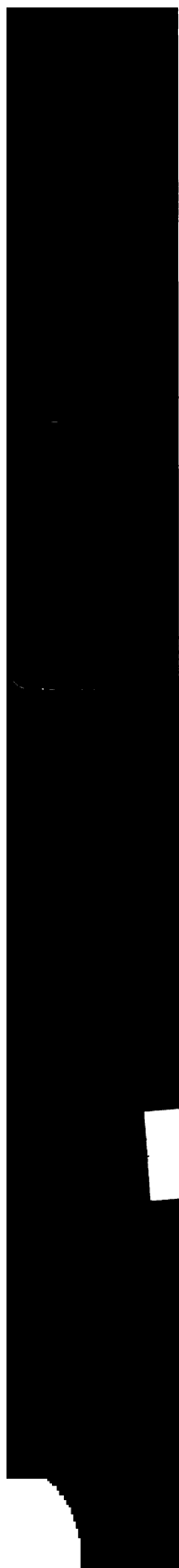
Shattuck - Introduction of water into Boston



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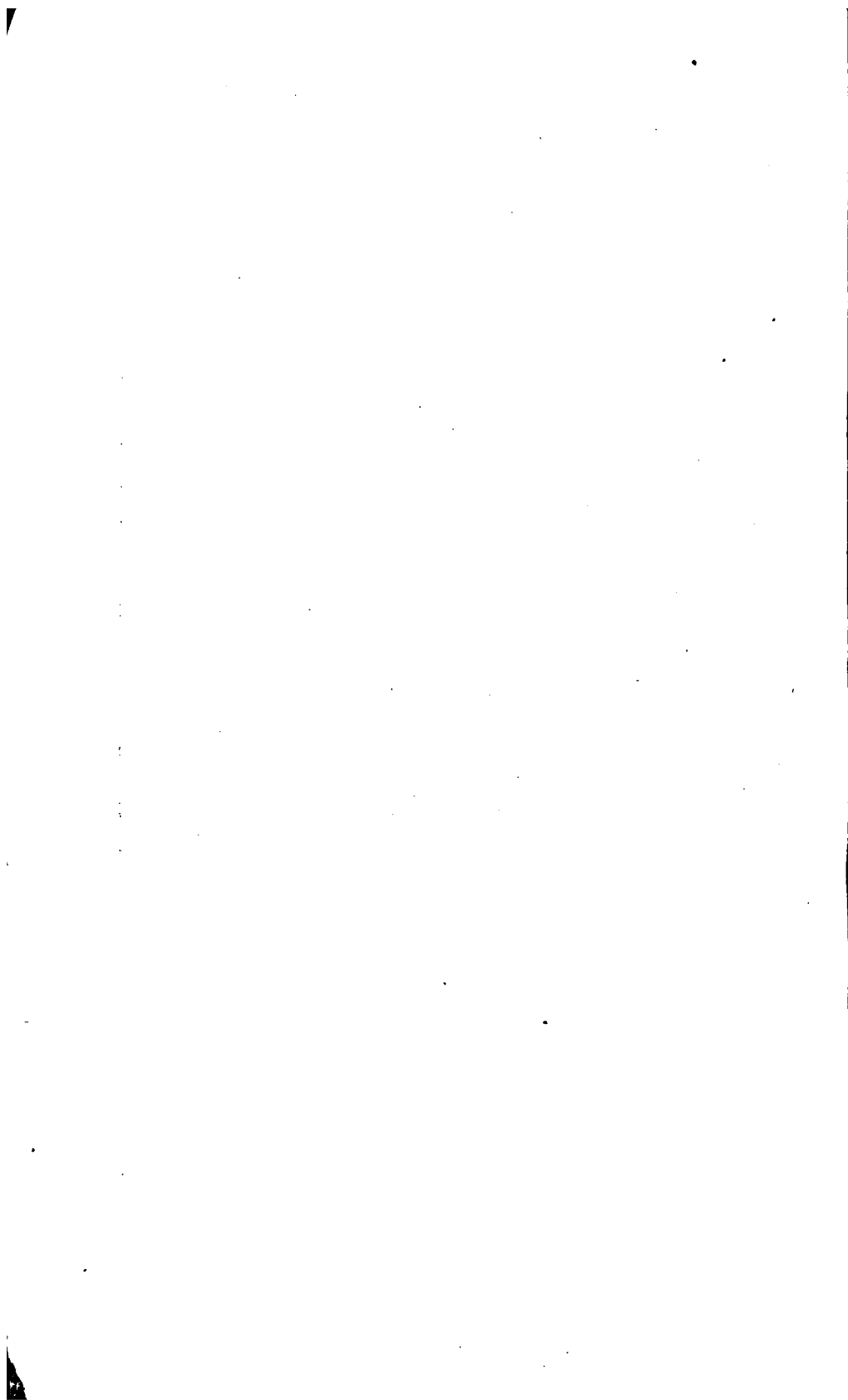
MR. SHATTUCK'S LETTER

TO

JONATHAN PRESTON,

ON THE

WATER QUESTION.



LETTER

FROM

LEMUEL SHATTUCK,

IN ANSWER TO

INTERROGATORIES OF J. PRESTON,

IN RELATION TO

THE INTRODUCTION OF WATER

INTO

THE CITY OF BOSTON.

BOSTON:
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MR. PRESTON'S LETTER.

Boston, *February 25, 1845.*

LEMUEL SHATTUCK, Esq.

Dear Sir :— The interest which has been excited on the subject of supplying the city of Boston with *pure* water, has not, I presume, escaped your watchful attention ; and, having had the pleasure and advantage of examining a statistical work of yours, upon another important subject, (The Vital Statistics of Boston,) and knowing the interest which you took in public affairs during the time you were a member of the Common Council, I have been led to suppose you may be in possession of facts bearing on the water question, that I have not been able to obtain, but which I deem it of the highest importance for the public to be in possession of, in order that all may form a deliberate and sound judgment, and act understandingly in relation to it, when called upon so to do.

Believing that you will agree with me as to the desirableness of introducing pure water from some source, if there be an urgent demand for it, and circumstances are favorable thereto, I propose to call your attention, and ask your reply, to the following interrogatories.

1st. Is there a necessity for the introduction of water into Boston from some foreign source ? If so, how great is that necessity ? That is, what quantity would be required, in the

unsupplied districts within the commissioners' line, taking into view the probable increase or decrease of dwelling-houses in the city proper, and the fact that a great number of private dwellings are constantly being converted into stores, or are annually demolished or removed to make room for them?

2d. If there be a necessity for the introduction of water, is it expedient for the city, in its corporate capacity, to introduce it from Long Pond, and on the plan proposed?

3d. If it be not expedient for the city in its corporate capacity to supply the citizens with water from Long Pond, and on the plan proposed, from what place, on what plan, and by whom, in your opinion, is it advisable to have it brought in?

I think you will agree with me, that the great outlay, which must inevitably be required to carry into successful operation any of the projects now agitated for supplying the city with water at the city's expense, deserves our most careful consideration.

This subject is of the greatest importance to the mechanical and industrial classes of this city; and you will not think it inconsistent with the deep interest they have taken in it, that they also deem it not less important, that no unnecessary expense be incurred, by bringing in a larger quantity than will ever be required for the use of the city; because all additional taxation will bear very heavily upon them.

However desirable it may be for any purpose to keep facts out of sight, at this juncture, no man who has, in reality, the true interests of the city at heart, will suffer himself to be voluntarily misled.

By replying to my inquiries, and furnishing the information for which I seek, at your earliest convenience,

You will much oblige,

Yours, respectfully,

J. PRESTON.

MR. SHATTUCK'S ANSWER.

Boston, *March 8, 1845.*

JONATHAN PRESTON, Esq.

Sir :— The receipt of your Letter of the 25th February, proposing sundry queries to me, relating to the subject of introducing water into Boston, is duly acknowledged. I infer from the tenor of your letter, that you wish such information as I may have, either as to fact or argument, as may be useful to enlighten the public mind on this great subject. I do not know that I possess more of such information than many of my fellow-citizens, who have devoted equal attention to it. I have, however, nearly every public document, or pamphlet of importance, on the introduction of water, which has been printed in Boston or New York, since 1825. I have also been familiar with all the acts of the City Council, in many of which I took an active part, and have carefully watched the proceedings of the different interests which have been brought to bear upon public opinion in relation to the subject, since it was first introduced. I have taken the pains to investigate it, not because I am directly or indirectly interested in the Aqueduct Corporation, or in any other project ever brought before the public; nor because I am in any way hired to manufacture or mould public opinion; nor otherwise than as one of the citizens of Boston, who sincerely desire its prosperity.

I agree with you in considering it a most important question; more so, in many respects, than any one ever presented to our people. I am aware that there are many individuals in the city, who seem determined to have water from a foreign

source at any rate ; regardless of the actual want, the cost, the income, and the other great collateral questions connected with it, and which ought first to be properly decided before acting definitely on the main question. On a matter of this magnitude, however, it seems to me that every fact or argument, which has a bearing upon it, should have its due weight, and deserves respectful consideration by all candid minds. To be understood it must be studied ; and to do this properly requires more time and more facts than are at command by the majority of our citizens. It cannot be properly investigated in a popular assembly in Faneuil Hall. The people yet need information before they can act intelligently on the subject, and if in any way I can aid in giving it I shall do it most cheerfully.

The late vote of the city I do not regard as the result of an enlightened voice of the people in favor of Long Pond. It may be regarded as a vote in favor of some water, but not that particular water. If they had acted with a full knowledge of the subject, in all its bearings on the individual and public interests of the city, this vote in my judgment would have been very different. The history of the meetings held at Faneuil Hall, and the other proceedings, preliminary to the voting in the wards, is known to many, though not to a large majority of the citizens. They were held at a time when other matters peculiarly occupied public attention. The people were then so much engaged in politics, as to give nearly all their time to that subject, not devoted to business in a most busy and prosperous season. They had little time to devote to peculiarly local matters, and did not generally attend the meetings in Faneuil Hall, to discuss a subject, that had slept nearly quiet for the last four years. And when the report of the commissioners, appointed by the city, at the suggestion of this meeting, was ordered to be printed and distributed, there was so much delay in doing it, that the

people did not get it until a few days before voting. I venture to affirm that not one in ten, who voted on this subject, read the report before voting. And if they had, the report of the last board of commissioners would have been an inadequate basis on which to form an intelligent opinion. That board were appointed for the specific purpose of ascertaining how water could be best obtained from Long Pond. They did not, nor could they, according to their instructions, examine any other source, or plan, for supplying the city with water. And it is a fact worthy of notice, that five out of the eight, constituting the last board of Aldermen, were opposed in their own judgment to the Long Pond, notwithstanding some of them voted in obedience to the wishes of their constituents to petition the legislature in its favor.

In my judgment, the first question to have examined is, what are the wants of the city, or what will be the number of tenants who will take and pay a fair price for water, if brought into the city? If the number shall be so small, that the income derived from them will pay but a small part only of the interest on the capital invested, and a dry tax on the property of the city become necessary, annually, to make up the deficiency, it will then be a question of expediency whether it is not possible to pay too much even for a good thing, especially when all the advantages of security, health, and comfort, may be obtained at a much cheaper rate. After ascertaining the probable number of water takers, the next question will be, what is the best method of supplying them, having regard to the efficiency and economy of the supply, and to the great interests of the people equally in all sections of the city, both present and prospective? Without, however, making further preliminary remarks, I will proceed, as you request, to reply to your questions; and I shall take them in the order in which you present them.

I. *'Is there a necessity for the introduction of water into Boston from a foreign source? And, if so, how great is that necessity?'*

That a supply of pure, wholesome water, sufficient for all the purposes of 'health, security, cleanliness, and comfort' of a people is necessary, is one of those obvious truths which no sane mind will dispute; and no one can feel the importance of a free use of that beverage more strongly than myself. The question whether such a necessity exists in Boston, after making allowance for existing supplies, is to be answered by a statement of facts, and by such reasons and conclusions as may fairly result from a consideration of those facts. It would not be safe to form conclusions on so important a subject upon abstract reasonings, applicable to all destitute places, but inapplicable in a special manner to our city; nor upon estimates and suppositions which do not present the clearest evidence of truth, and are not capable of being realized if carried into practical operation. This principle will be my guide in the statement I now propose to make.

There undoubtedly exists a necessity, or at least a strong desire among many inhabitants of Boston, for a supply of water from a foreign source. That the extent of this necessity, however, has been much over-estimated, is a truth, which in my judgment may be clearly demonstrated. Cases of inconvenience, and even temporary suffering for want of water may exist in Boston, and many would no doubt exist if water was brought in, unless it was made free to every one, and even carried into their houses gratis. Some persons are so negligent as not to keep their pumps in order, and neither landlord nor tenant would incur much trouble or expense in bringing the water from the main pipe in the street into their houses, nor keep the apparatus in order if

brought in. Such cases should not be relied upon to prove a general want of water. The late vote of this city was given on the express condition that all the water should be paid for. If this restriction is enforced, how are the destitute, made so by negligence or poverty, to be furnished? Will not cases of want still exist?

What, then, is the existing supply? Mr. Eliot said, in his Report, (City Document, No. 25, 1839,) that it would not be necessary to provide, for furnishing the whole city, more than 2,000,000 gallons daily, including the supply from Jamaica Pond, for many years to come; and that Jamaica Pond then furnished 200,000 daily, and might be made to supply 400,000, if all the waste water were secured. Mr. Loammi Baldwin says (Report, 1835) that pond has 67 acres, and one foot in depth contains about 21,000,000 gallons. Since then new pipes, capable of discharging 400,000 gallons, have been laid. The corporation now supplies 3,500 tenants—3,000 perfectly, and 500 partially. 2,000 of those well supplied, are south of Boylston and Essex streets, and the others north of that line. By transferring these to the section south of that line, there will be enough to furnish 1,000 water takers more, and some to spare, to increase the quantity of the present takers. This will meet all the new demands for some years to come. And should an additional supply be wanted there, the waters of Stony Brook, crossing the Dedham turnpike a short distance from the half-way house, Lilly Pond in Newton, and other waters in that neighborhood, might be combined with Jamaica Pond, at a very small expense, and flow together into the city. It would (says Mr. Baldwin, 2d ed. Report, 1835, p. 99) ‘furnish constantly from 500,000 to 700,000 gallons a day. The mean, 600,000, would supply 18,750 customers with a barrel, 9,375 with two barrels, and 6,000 with 100 gallons daily.’

These facts being considered, I suppose it will be admitted,

by all who look candidly at this subject, that that part of the city proper, lying south of a line drawn through Boylston and Essex streets, including wards ten and eleven, and a part of ward nine, between Essex and Beach streets, is now supplied with pure water by wells, or by the Jamaica Pond Corporation; and may continue to be supplied for the next twenty or more years. Though many in these wards voted in favor of water for the general good, yet no possible motive, as it seems to me, could induce any individual living in that section of the city to desire water for themselves, from any other source than that which now supplies them, unless it could be obtained of better quality, and at a cheaper rate. That water is of as good quality as any that is proposed to be obtained from other sources; and, according to the analysis of chemists, much better than Long Pond water; and that it is cheaper than could be afforded by the city, if introduced as proposed, will be made apparent in the course of these remarks. It must be settled that the Jamaica Pond water will continue to be used.

The inhabitants of South Boston, (ward 12,) with some few exceptions, obtain good well or spring water at small expense; and, as far as I can learn, no strong desire exists there, that the city should incur a large debt to supply what they do not generally want. The people of East Boston, and the other islands in Boston Harbor, would not of course wish to be taxed to furnish the city proper with water.

These sections of the city may be called, for the purpose of this inquiry, *the supplied section*; and should be excluded in estimating the necessity which may exist in other sections.

Now let us look at statistics; for facts are the only correct basis of reasoning. The population of Boston was 18,038 in 1790; 24,973 in 1800, being 38 per cent. increase; 33,250 in 1810, being 33 per cent. increase; 43,298 in 1820, being 30 per cent. increase; 61,392 in 1830, being 41 per cent.

increase; and 93,383 according to the United States census in 1840. In this last census, however, there were great errors. They will be evident, I think, from the following statement. On the first of May, 1840, a census of the city was taken by order of the State, in order to apportion the number of representatives to the city, according to the new provisions of the constitution then going into operation. I took a part of this census. This was two months before the enumeration made by the United States. I have compiled the following table to illustrate my subject.

TABLE exhibiting, in each ward, the State Census of May, 1840; the United States' Census of July, 1840; the ratable polls of 1840 and 1844; with the difference between them, and the total of each.

WARD.	CENSUS.		POLLS.		
	STATE. 1840.	U. S. 1840.	In 1840.	In 1844.	DIFFERENCE.
1	6,870	7,512	1,374	1,712	338 more.
2	6,817	15,282	1,485	1,633	148 "
3	7,012	7,345	1,832	2,375	543 "
4	7,350	7,360	2,035	2,451	446 "
5	6,504	6,579	1,141	1,551	410 "
6	7,565	7,268	1,354	1,493	139 "
7	6,727	6,452	1,738	1,967	229 "
8	7,945	6,702	1,847	1,747	100 less.
9	6,539	6,742	1,151	1,400	249 more.
10	6,527	8,136	1,250	2,075	825 "
11	7,326	7,450	1,462	2,156	747 "
12	5,496	6,176	1,027	1,719	692 "
	53,629	93,382	17,696	22,339	4,643

By an inspection of this table, it appears that, in the United States' census, the second ward is stated to contain 15,282 inhabitants; 9,465 more than in the State census two months before. And, in looking at the details of the U. S. census, 8,700 of this number are white males, between the ages of 20 and 40, and 536 colored males, between 24 and 45. It was then stated, that 10,813 of the whole population were engaged in

navigation; 7,683 of whom are put down in the second, and 1,982 in the eighth wards. One to two thousand were put down to one boarding-house. That there was a great mistake in taking this census, is too apparent to need any thing more than a mere statement of these facts for its proof. It will, therefore, be necessary, in order to form a correct estimate of the number of inhabitants, in 1840, to deduct 8,383 from the 93,383, which would give 85,000 as the correct population at that period; being 38 per cent. increase, from 1830. This would give 2,420 as engaged in navigation; provided the deduction was all made from that class of citizens. And, so far as the water question is concerned, a greater number might be deducted; since it is not supposed, that the transient population engaged in navigation, will, on the average, be 2,420 remaining on shore at once.

Now, to ascertain among what number of people a necessity exists for water, it will be proper to make the following deductions from the 85,000, being those living in the supplied sections; according to the United States' census, in the second column of the table —

The population of wards 10, 11, and 12 was	21,762
One third of ward 9, (between Essex and Beach streets,)	2,281
Part of ward 4, (East Boston, and Islands,)	1,957
Total to be deducted,	26,000

Some, I am aware, make a larger deduction than this, but I am willing to make it as favorable to the friends of the water project as possible. Deduct this 26,000 from the 85,000, and we have a population of 59,000; who, in 1840, lived in a section of the city among whom, if any where, a necessity exists for water. A part of the population live on what is called the high surface, and a part on the low.

The dwelling-houses in the whole city, according to the

State valuation, in 1831, were 6,766. In 1841, they were 8,902, showing an increase of 31 per cent., being less than the proportional increase of the population. This gives an average, then, of about ten inhabitants to one dwelling. Deduct twenty-six eighty-fifths of this number, (2,723,) according to the above estimate for the supplied section, and there remains in the other section, 6,179 dwellings. These contained the 59,000 inhabitants; averaging also about ten each.

In looking at this subject, it is important to estimate the prospective, as well as the present wants of the inhabitants. What, then, is the present population, and what will its probable increase be, in that section of the city which contained the 59,000 in 1840, as above specified? Some have supposed, and the reports of the water commissions have been based on this supposition, that, because, for many years past, our population has increased in a rapid ratio, therefore it will continue to increase in the same ratio. This supposition I think erroneous. And, if so, it forms one of the strongest objections to the Long Pond project; because it involves, in the outset, an unnecessary outlay, to provide for an unnecessary supply of water.

We have already stated what the population was in 1840. Let us now inquire what it is, and what are the probabilities of its increase? The wards of the city were newly arranged in 1838, and their limits since are very different from what they were before that period. This prevents us from making any comparison between the present and former wards, as to their relative increase. A statement of the number of ratable polls, though not a precisely accurate is an approximate guide to the number of inhabitants. The number in 1840 and 1844, and the difference between them, are given on page 11. Taking the same sections of the city,

in relation to the polls, as we have with respect to the inhabitants, and we obtain the following results : —

	In 1840.	In 1844.	Increase.	Per cent.
Polls in the whole city,	17,696	22,339	4,643	26
Polls in wards 10, 11, and 12,	3,739	5,980	2,241	
One third polls in ward 9,	383	466	83	
One third of ward 4,	678	827	149	
Polls in the ' Supplied Section,'	4,800	7,273	2,473	14
Polls in the other sections,	12,896	15,066	2,170	12

It appears from this statement, that the polls in the supplied section have increased 14 per cent.; 2 per cent. more than in all the rest of the city. Estimating the increase of the population to be 26 per cent., on 85,000, the same ratio as the increase of the polls, and we have an increase of 22,100, or 107,100, for the present population of the whole city; 14 per cent. of this increase, being 11,900, is to be added to the 26,000 in the supplied sections, which would give them 37,900, and 12 per cent., being 10,200 to the 59,000, which will give 69,200 to the rest of the city. This is a greater increase for the time, than has ever before occurred in the city, and appears an extravagant estimate.

Now, what is the probability of an increase of population in that section of the city — I mean north of Boylston and Essex streets. That the business of Boston will continue to increase in the same, and, perhaps, a greater ratio than it has done, we have no doubt; but we are equally confident that the population of some of the wards cannot increase, but must decrease. In all parts of the northern section, under consideration, the flats have been filled up nearly to the channel prescribed by the commissioners of the State; and no new land can be made; and the vacant lots are nearly all occupied. Where is there room for more? In some sections,

too, as you have well remarked, buildings, occupied as dwelling-houses, have given place to stores. This will continue to be done, which will of course decrease the number of inhabitants. This is already proved by the 8th ward, in which it appears from the table, that the polls have decreased 100 since 1840. In ward 4, the polls have increased 446. This increase is altogether in East Boston, for the polls there were 310 in 1840, and 758 in 1844, showing an increase of 448, and leaving the polls in that part of the ward, lying in the city proper, 2 less than in 1840. Wards 3 and 5, covering the lands on the mill-pond, west of Brighton street, and west Boston, exhibit the largest increase of polls. But there is a point beyond which they cannot go, and that point seems nearly reached. They cannot increase much more. While people will have their places of business here, they will be compelled to have their dwellings in the adjoining towns, and in places easily accessible by our railroads, where pure water and *pure air* (an element of life of even greater importance than water) can be freely enjoyed. I doubt whether that section of the city will ever contain over 80,000 inhabitants. This will require three dwelling-houses, where there are two now, on the average over all that section, after deducting what will be converted into stores. Where are they to be placed?

These details are necessary to show the wants of the city for water. And if every family living in that section, averaging them at ten each, should take the water, there would not be, according to our estimate, nor according to the number of dwelling-houses in 1840, but about 6,000 water takers. And there being no prospect of more than a third increase, it may fairly be presumed that there never will be more than 8,000 water takers. But are we sure that every family will take pond water, if brought into the city? By far the greatest part of the dwelling-houses in this section of the

city have wells and cisterns already, or are otherwise now provided with water; and if the same rule governs them which governs others in like circumstances, the people would not soon change their present habits and give up their present supply for any other; and there would not be found *one half*, who would take and pay for the proposed water. I am fully borne out in this statement by extensive inquiries in that section of the city; and also by the evidence before the Legislative Committee in 1838, and printed in the documents of the City Council. But admitting, for the purpose of putting the most favorable construction on the facts possible, that three out of every four will eventually take the water, then we have 6,000 as the highest number of families, that it will ever be necessary to provide water for in that, and the only section of the city, which may need a supply. I am willing to allow that a necessity exists for the cleanliness and comfort of a part of those families now, and may exist for the others at some distant future period. This in the largest sense, allowing 175 gallons a day for each taker, which is a very liberal supply, and averaging all that may be wanted for fires, streets, manufactories, and all other purposes, will require the introduction into the city of only 1,050,000 gallons daily, not half what Spot Pond, or one engine from Charles River, would furnish. Would such a necessity, either present or prospective, justify the city in incurring the debt proposed to be created?

But we will illustrate this matter still further. In determining what quantity of water will be required by a given community, or by individuals, it is right for us to avail ourselves of the experience of others. The commissioners say, (Document 33, of 1838,) that, to each inhabitant in Liverpool, 8½ gallons are required; in Manchester, 11½ gallons; in Greenough, 15 gallons; in Glasgow, 17 gallons; in Edinburgh, ('the most magnificent works in Great Britain,') 20

gallons ; in London, $27\frac{1}{2}$ gallons ; and in Philadelphia, including all the water delivered at Fairmount, and wasted or used freely for watering streets, extinguishing fires, for manufactories, breweries, baths, ships, stables, &c., $28\frac{1}{2}$ gallons. In regard to Philadelphia, I shall show this statement to be over-estimated.

The following table, exhibiting the miles of pipe laid, the number of water tenants, and the average number of gallons supplied daily to the whole and to each, by the Fairmount Water Works, is compiled from the Reports of the Watering Committee. I have no reports of the years not specified.

Year.	IN THE CITY ALONE.				IN THE CITY AND DISTRICTS.			
	Miles. Pipe.	Free.	Paying.	Total.	Miles. Pipe.	Tenants.	Average gallons supplied daily.	Each tenant.
1831	44			7,968		11,404	2,000,000	175
1-34		2,500			82 $\frac{1}{2}$	16,595	3,400,000	200
1835	54 $\frac{1}{2}$	3,000	10,059	13,059	93	18,704	3,497,648	187
1836	53	3,000	10,632	13,632	95 $\frac{1}{2}$	19,678	3,122,654	160
1838	61 $\frac{1}{2}$	3,000	11,436	14,436	106 $\frac{1}{2}$	21,947	3,850,647	175
1839	62 $\frac{1}{2}$	3,100	11,956	15,056	109 $\frac{1}{2}$	22,636	3,978,357	175
1840						23,482	4,034,638	171
1841	63	3,300	12,749	16,049	113 $\frac{1}{2}$	21,828	4,445,630	179
1842	64 $\frac{1}{2}$	3,300	13,138	16,438	114 $\frac{1}{2}$	25,816	4,237,480	167
1843	65 $\frac{1}{2}$	3,300	13,439	16,739	117 $\frac{1}{2}$	26,549	4,422,400	166
1844	66 $\frac{1}{2}$	3,500	14,021	17,521	120 $\frac{1}{2}$	28,082	5,330,445	189

This gives an average, for the last five years, of 175 gallons ; and the previous 6 years, 178 to each tenant. In 1840, the population of the water districts was 220,423, and the number of water tenants 23,482, which gives one tenant to nearly 10 inhabitants, or 18 gallons to each, and not $28\frac{1}{2}$, as stated above. There were then laid about 111 miles pipe, which gives 234 tenants to the mile. In 1844, there were $120\frac{1}{2}$ miles of pipe laid, and 28,082 water tenants, averaging also 234 tenants to the mile.

The quantity of water furnished by the Croton Works, in New York, is not measured. Last November, 155 miles of pipe was laid there, to accommodate about 40,000 dwelling-houses, and 310,000 inhabitants ; and there were 8,644 pay-

ing water takers, averaging 55 to every mile of pipe, one to every $4\frac{1}{2}$ dwelling-houses, and one to 36 inhabitants.

Now let us apply these facts, as far as they are applicable, to Boston. The commissioners say, (Report, 1837, p. 37,) that the whole length of the streets of Boston, including those not built upon, is, according to Smith's Map of Boston, 48 miles. This would produce, for all purposes, if all were built upon, and the inhabitants took the water as generally as they do in Philadelphia, (234 tenants to the mile,) 11,232 water tenants. Deduct one third for South and East Boston, and for those supplied by the existing Aqueduct, and we shall have only 7,488, even then, to be provided for. This would require, at 175 gallons to each tenant, but 1,290,400 gallons, not much more than half what Spot Pond, or one engine from Charles River, would supply. This coincides with the results we have before arrived at, by a consideration of other facts. The proportion of takers to the mile, according to New York, (55,) would give Boston only 2,640 in all.

Why, then, I ask, is it necessary to be at the enormous expense of providing for the introduction of 7,000,000 gallons daily, as is proposed to do from Long Pond, when a quarter part of the quantity, at a quarter part of the expense, will serve all the wants of the inhabitants for many years to come? That quantity of water, at the average copious supply of 175 gallons each, would furnish 40,000 tenants, or 380,000 inhabitants, four times as many as we have shown can be obtained in the city, if the Jamaica Pond water continues to be used. These are among the many considerations which are conclusive, to my mind, that such a necessity does not exist as would justify the city in providing for the introduction of so much needless water.

II. *'If there be a necessity for the introduction of water, is it expedient for the city, in its corporate capacity, to introduce it, on the plan proposed, from Long Pond?'*

In considering this question, the points to be examined are, What are the expenses which it would be necessary to incur? What will be the probable income? And, how is the interest and debt to be paid?

The commissioners estimate the expenses of introducing the Long Pond water at \$2,118,535.85; but a common sense examination of their Report, in my opinion, will convince any unprejudiced mind, capable of analyzing it, that their estimates are much below what the work would cost, if done in such a manner as would answer a permanently useful purpose, and be acceptable to the city. There are several items in the Report, which, it seems to me, are very unsatisfactory, and will prove to be erroneous, should the work be undertaken. The commissioners were instructed to do a specific thing, and they did it, without considering all those particulars, which, under different instructions, might have been detailed. One of the commissioners (Mr. Hale) had before (in 1837,8) given his preference for Spot Pond over Long Pond; and one other (Mr. Jackson) testified, before the Legislative Committee, that, before commencing the work, he should make further examination as to other sources and plans; and that he considered the estimates in their report of water rights and damages, as not to be depended upon. He would not take the risk of them for \$500,000. We have no particular reason to suppose that these estimates will agree much nearer with actual cost, than those of other public works with which we are familiar. Who ever knew an estimate of this nature to cover the actual cost?

The Court House, in Court street, was estimated at \$90,000, and it actually cost \$175,000; the Lowell Railroad, estimated at \$673,000, cost \$1,902,555; the Providence Railroad, estimated at \$769,000, cost \$1,886,134; the Worcester Railroad, estimated at \$1,000,000, cost \$2,914,078; and we have an estimate on the introduction of water, which will still more forcibly illustrate our position.

The project of bringing the water of the Croton River into the city of New York was surveyed several times, by different boards of engineers; and, finally, after the most careful estimates of the expenses, it was submitted to the citizens, for their approval or disapproval, in April, 1835, under the positive assurance that the expense should not exceed \$4,250,000 for the aqueduct, and \$1,261,629 for distribution; and 'that the income which would accrue to the city, from very low charges for supplying the water, would overpay the interest on the cost of the work.' The vote was taken in April, 1835, and 17,330 voted 'yes,' and 5,963 'no.' The project was prosecuted, and water was introduced into the city in 1842, though the work is not yet entirely completed. The debt incurred on this account, May 1, 1841, was \$7,949,377; May 10, 1842, \$10,838,562. The public documents of the city of New York give the following account since then.

	<i>Jan. 1, 1843.</i>	<i>Jan. 1, 1844.</i>
Paid Water Commissioners on Con- tracts, &c., }	\$7,900,790.24	\$8,173,003.74
" Water pipes and laying,	1,804,149.53	2,087,251.87
" Interest to August 1, 1842,	1,577,459.43	1,577,459.43
" Specie to pay interest in 1837 and 1838, }	2,831.18	2,831.18
" Water loan expenses,	6,840.81	8,290.13
" Preservation of works during riot, }	3,146.56	3,146.56
" Discount on sale of stocks,	647,157.32	647,157.32
Total payments at those periods,	<u>\$11,942,375.07</u>	<u>\$12,499,140.23</u>

On the 10th of August, 1844, the water debt was as follows :

At 5 per cent.	\$9,285,232	Annual Interest,	\$464,261.60
At 7 per cent.	2,000,000	" "	140,000.00
At 6 per cent.	1,062,973	" "	63,778.38
At 4 per cent.	288,693	" "	11,547.72
Total debt,	<u>\$12,636,898</u>	Annual Interest,	<u>\$679,587.70</u>

Prior to August, 1842, the interest on this debt was added to the principal, and constituted a part of the debt; since then, it has been paid by a tax on the people. For the three past years there has been raised, by tax, about \$1,800,000 to pay interest, which, added to the \$12,636,898, will make about \$14,500,000, which the city has paid, or become liable for, on this account. And the work is not yet done! Here is an expenditure of more than triple the estimate; and it is worthy of particular remark, that the estimates of the income, as will be hereafter shown, are still further from the truth.

How, then, I ask, can we suppose that the actual expenditure of the cost, and the income of the Long Pond water, will agree more with the estimates, than the other public works to which I have adverted? . We are certainly not warranted in supposing it, from any evidence yet produced. There is no doubt, in my mind, that the cost, if the work is done as it ought to be, will not be less than \$4,000,000, and may amount to \$5,000,000.

And how is this money to be obtained? O, says one, the city is in good credit, and it can borrow the money. True. But in doing it, do we not create a debt equal, on the average, to \$50 to every man, woman, and child in the city, and for which the whole real estate of the city is mortgaged to one sixteenth of its value, the annual interest of which will be over \$225,000, and for which every individual is liable to have his property taken?

And what will be the income of this investment? Some have supposed that, because the Jamaica Pond Corporation have recently paid an annual dividend of ten per cent. (the

greatest they have paid) on their capital of \$200,000, that therefore the Long Pond water will pay a dividend on its cost. But the fallacy of this statement will appear to any one who examines the subject. It may be easy enough to pay a dividend on \$200,000, but not so easy to pay one on four or five millions. The Boston Aqueduct was incorporated in 1795. It paid no dividend till 1807, and less than 4 per cent. for the subsequent 30 years. Let us, however, in this, as in other questions, avail ourselves of the experience of others.

Much has been said as to the income of the Philadelphia Water Works. That this subject may be clearly understood, I have compiled the following table, exhibiting the total cost, (including only the distributing pipes and fixtures of the old works applicable to the new,) the gross income, the expenditures, and the net income of the whole, and for each tenant, for such years as I have reports.

	Total Cost.	Gross Income.	Expenses.	Net Income.	Each Tenant.
1831	\$1,178,323 54	\$66,766 72	\$63,009 57	\$3,757 15	\$.32
1834	1,264,292 36	90,631 00	65,163 36	25,467 64	1.50
1835	1,323,560 74	92,116 62	73,258 38	18,858 44	1.00
1836	1,381,031 43	101,266 39	71,706 57	29,559 82	1.50
1838	not stated.	109,526 06	50,642 29	58,883 77	2.69
1841	1,453,300 40	134,634 67	24,701 75	109,932 92	4.42
1842	1,493,686 20	139,652 97	63,911 40	75,741 57	2.93
1843	1,594,594 05	144,765 74	63,171 84	81,593 90	3.07
1844	1,600,000 00	151,501 37	24,332 10	127,169 27	4.52

From this table it appears that the average net income for the last four years has been \$3.73 for each tenant; the five previous years, \$1.40 each. The city of Philadelphia has hitherto supplied the five adjoining districts,—having independent governments, but resembling the outer wards of the city,—Spring Garden, Kensington, and Northern Liberties, lying north of the city, in 1844, containing 7,683 water tenants; and Moyamensing and Southwark, lying south of the city, containing 2,878 tenants. These districts have paid 50 per cent. higher for water than was paid in the city, com-

mon dwellings paying in the former \$7.50, and in the latter \$5.00 each, and others in proportion. Objections have been made to paying these prices, and a contract has recently been concluded by which the southern districts will be supplied for the next ten years at the same rates as the city. The three northern districts have, however, declined taking water even at these prices, and have erected steam works on Pratt's Hill, to supply themselves. This will reduce the number of water tenants, this year, to 20,399; the gross income to \$92,287.88; and the net income to \$63,087.83, or \$3.08 per tenant.

The Croton Aqueduct, in New York, was estimated to produce a 'handsome income' on the expenditure. The following statement, for 1844, will show how far that estimate has been realized :

The gross income from the water rents for 1844, was \$102,600,

From which deduct the annual cost of maintaining the aqueduct from the Croton river to the city, about	} 25,000
Repairs of hydrants, stop-cocks, breaks in water-pipes, tools, &c., about	} 25,000
Salaries of the 'Croton Aqueduct Board,' consisting of twenty-six individuals, exclusive of laborers,	} 20,919
	70,919

Net income of the water rents for 1844, \$31,681

This is equal to six per cent. on a capital of \$528,016, or about *one quarter of one per cent.* on the investment; not so very 'handsome income' as some may desire on capital. There were in November, 8,644 water takers, which gives a net income of \$3.66 each. 6,175 of these water takers are for private dwellings, varying from \$5 to \$27 gross each. Of the miscellaneous takers there are 76 steamboats, averaging \$74.04 each, and 118 steam engines, averaging \$50.50

each, both producing \$10,586; but a small portion of which could be obtained in Boston.

Apply these facts to Boston. It has been stated before the Legislative Committee, that ordinary sized families would not take the water, to pay for it more than \$6 or \$8 each, (some suppose less than that sum,) and this coincides with the views of the water commissioners. Many voted for it under the impression that it would cost much less than what is now charged by the Aqueduct Corporation. If my estimate of the probable number of water takers be correct, and I do not see how it can be disproved, then it follows that the 6,000 or 8,000 water takers, who will have an opportunity to take the water if they choose to do it, at an average of \$8 each, (and it cannot be sold at a higher rate,) will produce \$50,000 or \$60,000 gross income annually, if all take it, half of which at least, will be required for superintendence, repairs, and collections, which are necessarily connected with all such works, leaving only about \$25,000 as the net income from the water; and I do not see how it can exceed that, for many years, at least. It follows, *inevitably*, that the balance of interest, and it amounts almost to the whole of it, must be raised by a heavy tax annually on the people.

What effect will this have upon the interests of the city? Boston has already a large city debt of about \$1,500,000, (last May, according to the auditor's report, it was \$1,423,800, the annual interest of which then was \$77,174.50,) and the taxes are already so high here, that many move out into the country before the first day of May, to avoid them. Many millions of property in this way escape taxation every year; and should this burden be much more increased, many more will remove. The prospect of such an increase has already alarmed many, and leases and other contracts have been executed requiring the lessees to pay all taxes and other incumbrances imposed by the city on account of the water

project. That the increase of taxes in Boston may be clearly seen, I have compiled the following:—

TABLE, exhibiting the aggregate valuation of property in Boston; real, personal, and total; the polls, the tax assessed, and the number of cents in each \$100 valuation, at the different periods specified.

Year.	Real Estate.	Personal Estate.	Total Valuation.	Polls.	Tax.	On \$100.
1800	\$ 3,550,500	\$ 4,097,350	\$ 7,647,850	4,538	\$ 73,428.75	
1810	10,077,200	8,372,300	18,449,500	7,754	144,456.72	39
1820	21,687,060	16,602,200	38,289,260	7,810	165,228.30	40
1825	30,902,000	21,450,600	51,442,600	11,660	201,039.10	35
1830	36,960,000	22,620,000	59,580,000	13,096	260,967.30	40½
1835	47,552,800	31,749,800	79,302,600	16,188	408,899.61	48½
1836	53,370,000	34,895,000	88,245,000	16,719	444,656.65	47½
1837	56,311,600	33,272,200	89,583,800	17,182	473,662.00	50
1838	57,372,400	32,559,200	90,231,600	15,615	465,557.34	49
1839	58,577,800	33,248,000	91,826,400	16,561	543,660.66	59½
1840	60,424,200	34,157,400	94,581,600	17,696	546,742.50	55
1841	61,963,000	36,043,600	98,006,600	18,915	616,412.10	60
1842	65,499,900	41,223,800	105,723,700	19,636	637,779.09	57
1843	67,673,400	42,372,600	110,056,000	20,063	712,379.70	62
1844	72,048,000	46,402,300	118,450,300	22,339	744,210.30	60

From this table it appears that the whole tax of the city in 1830, was 40 1-2 cents on \$100 of the valuation; in 1844, it was 60 cents. This is a proportional increase of 50 per cent. The taxes, in 1830, were \$4.25 to each inhabitant; in 1844, they were \$7.00, nearly, showing about the same relative increase on the population as on the valuation. Should water be brought into the city, as proposed, every man's taxes would, in my judgment, be increased above the present high rates 25 per cent., at least, some suppose 50 per cent., to pay the interest alone on the water debt, beside what would be derived from the sale of the water. Every man who now pays \$100 tax, would then have to pay \$130 or \$140 in taxes, besides paying for the water; and in the same proportion for a larger or smaller tax. The people will not willingly submit to these exorbitant taxes, and the consequence will be, that the appropriations for schools and other matters of importance, which have been so long and so liberally provided for

in Boston, must be curtailed, and expose us to ignorance and vice. And these taxes, unless some special provisions are made by law, would fall equally on all sections of the city, as well on those who do not take it and are not benefited by it, as on those who take the water and are benefited by it. This would be manifestly unjust. I think that the payment of any such tax might and will be successfully resisted on legal and constitutional grounds, because such a necessity does not exist as would justify the taxing of one citizen for the exclusive benefit of another, without their consent. This is a consideration of grave importance. To obviate this inequality, the city of New York assess the interest on their water debt in those wards and parts of wards only which are benefited by it. If an act to bring water from Long Pond into Boston should be proposed, some provision should be inserted in it, exempting from taxation such citizens as are not benefited by it, or such wards as should not elect to take it.

The assessment of taxes in New York, in 1839, for the general purposes of the city, (the laying out, paving, and repairing streets, &c., being there a special assessment on the abutters,) was on the average 50 cents on the \$100 valuation. The assessment for 1844, for the same general purposes, was 82 cents on the \$100, and 21 cents of which was for water. This is an increase of 64 per cent. since 1839; of which 43 per cent. is for water.

These, among other considerations, are sufficient, in my opinion, to deter the city from incurring such a debt for such a purpose; for certainly it cannot be done without imposing an onerous tax annually on the property of the city for many years to come. Let every one ask himself, if his own wants for water, or if the wants of the city generally for water, are so strong as to induce him to submit cheerfully to have his taxes increased 30 to 50 per cent. to pay the interest on the water debt alone, without providing any thing for the

principal; and especially when all his own and the wants of the city, can be supplied in some other mode without such a tax? Let those mechanics and others whose property is mortgaged, on whom taxes fall most heavily, give a candid consideration to these matters.

III. *'If it be not expedient for the city, in its corporate capacity, to supply the citizens, on the plan proposed, from Long Pond, in what way would you have it done?'*

From what I have already said, it will be evident that, for many years to come, if ever, there cannot be more than 6,000 or 8,000 water takers in Boston, including all that shall be wanted for extinguishing fires, manufacturing, shipping, &c., besides the existing supplies, and the resources connected with them. If this be correct, and it has not been disproved in the investigation before the Legislative Committee *by any fact*, then there may be wanted, at 175 gallons each, 1,050,000 gallons daily, for the smallest number—6,000 takers, and 1,400,000 gallons for the largest number—8,000 takers. How shall this quantity be supplied?

Two modes present themselves; one by the city, in its corporate capacity, the other by a private corporation. A private corporation may be organized, under such liabilities and restrictions, as would effectually guard the public against imposition, and as would compel it to furnish all the water wanted for private use, at reasonable rates; and all for public use, for the security and ornament of the city, free. I am informed, that sufficient capital can be raised by such a corporation for this object. Rather than have a debt contracted by the city, some gentlemen have subscribed largely to a private company; some as large as \$10,000 each, if a provision can be inserted in the existing act of incorporation,

exempting the shareholders from personal liability, not with an expectation of realizing a profit by it, but in the form of a donation, preferring to lose a certain sum outright, than to run the risk of losing a much larger and uncertain one by taxation. But if it be deemed necessary or expedient to insure its success, the same policy might be adopted by the city, in its relation to the water corporation, as has been adopted by the State in its relation to the Western Railroad Corporation. The city might take part of the stock, and loan its credit to the corporation on pledge of its property, in the same manner as the State took a part, and loaned its credit on pledge of the property of the railroad, with the right reserved to purchase its franchise on such equitable terms as may be agreed upon. In this way, the corporation would be partially under the control of the city, and the city would know exactly what liabilities it incurs, and be secure for the payment of them. There are several reasons which induce me to prefer a private company to the city for the supply ; some of these I will state :—

1. The work can be done, and the water afforded, cheaper by this mode. This is a notorious fact in nearly all public and private enterprises. As to the actual cost of the water, it makes no difference whether you pay annually \$5 for the water for a house, and an additional \$5 in taxes on that house for the interest on the water debt of the city, or whether you pay at once \$10 to a corporation for water.

2. There would be no danger of a monopoly. Such a corporation would have a competitor in the existing means of supply, and unless reasonable rates were charged, it could not sell its water. This was, so far as relates to the price of water, the opinion of Mr. Brimmer, and others, who testified before the Legislative Committee. The control of the city would protect the public against an unjust monopoly, or extravagant charges. But what is the difference, if water is to

be paid for, whether the city take this monopoly into their own hands, or vest it in the citizens, or a corporation. In one case, the city becomes the speculator on the public; in the other, the corporation becomes the speculator; and I think one would be as hard a master and as monopolizing as the other. As far as my observation extends, I would as readily deal with an ordinary corporation, as with a municipal corporation.

3. As regards water wanted as security against fire, and for ornamental purposes, a private corporation would afford all that would be afforded, as well as if brought in by the city. The same saving, if any, in insurance, and in the fire department, and the same benefits in other respects, would be obtained in one way as well as in the other.

4. An increased annual amount of labor and expense, for salaried men and repairs, which would be required in the management of the water works, might be avoided by the city. 'It is well known,' says Mr. Wilkins, 'to such as have had experience in the city government, that the various interests of the city require much care and attention; that these interests are every day becoming more various and more complicated, and every year requiring more care and more attention. It must be obvious, however, that the management of such works as the introduction of water would require, will add very much to the labors of the city government, to say nothing of the collection of water rents, which will be attended with almost numberless appeals for abatement, from one cause or another, all of which ought to be officially heard.'

5. A corporation would prevent matters connected with the water question becoming an element in the politics of the city. 'Whatever policy,' says the writer above referred to, 'may be adopted by an existing city government, whether it be low rents, or high rents, or no rents at all, that policy will be sure to have opponents, who will connect it with some

party movement, and, in time, change the policy, until another tide of public sentiment can be raised, and, perhaps, a new experiment tried. But, in the hands of a joint-stock company, all these matters would be regulated by a board of directors, at which board the interests of the city would be represented to the extent of those interests, and the collective body of the citizens would be exempted from the feverish state of excitement, which could hardly be avoided, if the whole control were in the hands of the city government.'

6. *If water is to be paid for, the only way to secure that payment is by a private corporation.* If brought in by the city, the same power—the people, the popular voice—which orders this water in, with the condition of having it paid for, will assuredly modify that condition, and have it free. And it would be more equitable for the whole city that it should be so, than to tax one for the benefit of another, and create an unequal burden, to be borne by the different parts of the city; and it would be easier to collect the whole interest by tax, than a part by rents and a part by tax.

7. A corporation would remove all the constitutional and legal objections which exist as to taxing the people for this object against their consent.

For these and other reasons, I am in favor of having water brought in by a private corporation; and these were the views of the water committee of the City Council, of which Mr. Brimmer, the Mayor, was Chairman, in their report made in February, 1843, (see City Document, No. 6, 1843,) in which are very properly presented the conditions on which it was expedient to allow a private corporation to introduce water. And it would have been done before this time, but for the clause in the act of incorporation, making the stockholders liable in their individual capacity, for the corporate debts.

As regards the sources of supply, the two which have been most prominent before the public are Charles River, and Spot

Pond. Of the capacity of supply, and the feasibility of introducing the former, there is no doubt. The commissioners, in their Report, of 1837, page 13, say, that Spot Pond contains 280 acres, and may be relied upon to furnish 2,100,000 daily. It seems to me, however, that it is a fact, capable of demonstration, that it may be made to do much more than that. The pond may be raised *seven feet* above its ordinary level, which will give 60 additional acres, and increase the area to 340 acres; and water may be taken from it *ten feet* below its ordinary level, at which point the pond is estimated to contain 200 acres. Take half the difference between 200 and 340, and deduct it from 280, and we have 210 acres as the average area of the pond, containing a body of water *seventeen feet deep*, as a fountain to be drawn upon to supply the city. Multiply this 210 acres, by 43,560 feet to the acre, and it gives 9,147,600 square feet in one foot depth of the pond; which, again multiplied by $7\frac{1}{2}$, the number of gallons in a square foot of water, gives 68,607,000 gallons. This again, multiplied by 17, the number of feet head of water capable of being drawn off, produces 1,166,319,000 gallons at the service of the city. This quantity will be there every year on the first of May, and, if drawn off, would be filled up again in November. How many gallons per day, then, could be drawn from it in 6 months, or 183 days, from May, allowing the occasional rains and springs, which supply the pond, to equal only the evaporation? This is ascertained by dividing the above number by 183, which gives 6,373,326 gallons. These calculations are based upon reliable facts. Here then we have a supply of over *six million of gallons daily*, provided no material addition is made to it by rains during the whole of the season, when there is any doubt of the pond remaining full. This will furnish more than double the highest number of water takers estimated, and be abundant for all the purposes of the city, both present and prospective.

There is one consideration of weight with some, that the Long Pond water would give fountains and jets, like the Croton Aqueduct in New York ; but it ought to be remembered, that that water cannot be brought in above the level of the floor of the State House ; and it would be impossible to have jets, unless in places much below that level. Such a level would be of little use as a force to the water in case of fire. If the water of Spot Pond be introduced, being 24 feet higher, a successful fountain might be constructed at the State House, and the same water used for a similar purpose on the Common, and afterwards serve for filling the fire reservoirs.

The expenses of introducing the Spot Pond water are based upon the following calculations. The commissioners say, (Report, 1837, page 74,) that it will require 16,789 feet of 22 inch iron pipe from the pond to Walnut-tree Hill, and 39,707 from thence to Beacon Hill. This size pipe will discharge they say, (same Report, page 18,) 2,592,000 gallons a day on Beacon Hill, 5,184,000 on Fort Hill, or 5,832,000 at the Market, the variation being caused by the difference in the head. This pipe may now be had, at the present price of iron, at \$2.20 less a foot than at that time. The estimate then will be as follows, not including the works at Mystic Pond :—

56,496 feet 22 inch pipe, at \$6.82,	\$ 385,302.72
Rock cutting at the pond, per report,	1,007.00
Dam, &c., at the pond,	1,200.00
Stone bridge on Mystic River,	5,000.00
Reservoir on Walnut-tree Hill,	13,000.00
Stone bridge over Charles River,	14,000.00
Two culverts,	1,000.00
Land damages, water rights, &c.	80,000.00
	\$500,509.72
Add 10 per cent. for contingencies,	\$ 50,050.97
Total cost,	\$550,560.69

This estimate corresponds with the testimony of Cyrus Alger, Esq., who said, before the Legislative Committee, that he would contract to bring the Spot Pond water and deliver it on Beacon Hill and Dorchester Heights, and warrant the works, for \$500,000.

All the water of Charles River, which one engine could raise, amounting to 3,000,000 gallons daily, might be brought into the city for about the same cost, and the quantity might be increased without much additional expense, as has been shown in an able pamphlet, recently published by John H. Wilkins, Esq., which deserves the careful study of all interested in this subject.

The commissioners of 1844, (Report, page 32,) estimated the cost of bringing the Long Pond water to Beacon Hill, at

	\$1,253,174.67
Add 10 per cent. for contingencies,	125,317.46
	\$1,378,492.13
Deduct the estimate of Spot Pond,	550,560.69
This gives a saving of	\$827,931.44

In about 11 years, or certainly before it would be necessary to resort to Mystic Pond, an additional engine on Charles River, or any other source of supply, this sum of \$827,931.44, at compound interest, will have doubled, or become \$1,655,862.88, or *more than enough, by* \$402,688.21, according to the estimates, *to build the whole works from Long Pond!* And if the time be extended to 22 years, and 7,000,000 gallons of water will not certainly be wanted before then, this sum will again double, and amount to \$3,311,725.76. Will not this be the same as taking that amount of capital from the pockets of the citizens of Boston, and actually throwing it away—squandering, or foolishly wasting it? Can any thing more forcibly show the impolicy of the project?

I have thus endeavored to reply to your questions in a fair and impartial manner. Such facts as I have presented are authentic; and the conclusions I have drawn from them seem to me warranted; and they deserve the grave consideration of every citizen of Boston. No one, candidly viewing the whole subject, in my opinion, will come to the conclusion, that the wants of the city, now, or for the next twenty years, will require the amount of water supposed by some to be needed; or that it will, upon any question of necessity, expediency, or economy, be justified in introducing the Long Pond water. And whether the city or a private corporation introduce it, some other source is certainly preferable. *And this has been the opinion of the mayors of Boston since its incorporation as a city,—Messrs. Quincy, Otis, Lyman, Armstrong, Eliot, Chapman, and Brimmer.*

I enclose to you several papers in further illustration of some points which I have discussed, containing important information bearing on this subject. There are several views of it, to some of which I have only alluded, which deserve more full consideration. Among them, are the legal objections to taxation and the chemical qualities of the water. These are questions which may properly be left to professional men. The former has not yet, as far as my knowledge extends, been fully discussed in a printed form. The latter has been partially examined in the Reports of the commissioners. There is one point, however, the comparative merits of pond and river water, which I should like to see more fully attested. My object has been to confine myself principally to a financial view of the subject; and I have extended my remarks farther already than I at first intended; I fear too far to interest you.

Giving you liberty to use this Letter in any way you please,

I am, very respectfully,

Your obedient servant,

LEMUEL SHATTUCK.

APPENDIX.

The following is the Report of the City Council, referred to on page 30, made February, 1843.

The Committee on the Petition of James C. Odiorne, for leave to bring into the City of Boston and distribute the Water of Spot Pond, beg leave to

REPORT:

That they have given the subject particular attention, and have granted the petitioners a hearing in explanation of their views and wishes with regard to this subject. In granting leave to these petitioners, or any others, there are two important points which the City Council should have ever in view. The first is, that the water sought to be introduced, should be *pure*. The second is, that it should be abundant. The waters of Spot Pond, which the petitioners propose to convey to the City, is believed to be of the purest quality. In the year 1834, Dr. Charles T. Jackson analyzed these waters and found 2 40-100 grains of earthy matter in 100,000 grains of water. 'It contains,' he says in his report, 'a few minute flocculi, but is otherwise transparent and colorless. It contains a few oval shaped animalculi.' And Mr. A. A. Hayes, in 1837, states that he finds 1 80-100 grains earthy matter in 100,000 grains water, without color or odor. The water of Spot Pond is one of the purest, if not the purest, water in the vicinity of Boston. No fear or doubt then need exist on this head.

With regard to the supply having reference to a series of years, there may be more question. The level of Spot Pond is 143 feet above marsh level, or medium high tide, being the highest source within twenty miles of the City, with the exception of Waltham Pond, and Sandy Pond, at Lincoln. The area is, according to Treadwell, Baldwin, and

Hale's Report, in 1837,	280 acres.
Loammi Baldwin, in 1834,	260 "
R. H. Eddy, in 1836,	260 "

To which as the latter states, 60 acres may be added by building a dam, and creating an artificial reservoir. With regard to the capability of Spot Pond to supply water, there is a greater difference of opinion. According to the Report of the Commissioners, in 1837, 'Spot Pond may be relied upon to furnish an average of 2,100,000 galls.—that the discharge may be taken as never falling below 1,600,000, and may never be expected to exceed 2,600,000 galls. a day.' And they add, 'with these results we cannot recommend to the *City Council* to erect works for the supply of the *City*, depending entirely, for the future as well as the present, upon Spot Pond as a source.'

R. H. Eddy, Esq. supposes that by building a dam, 60 acres may be added to the Pond. This adds, by so much, to its capacity as a reservoir, which he estimates at 429,638 gallons per day.

There is no doubt, then, that Spot Pond is capable of supplying 1,600,000 gallons of water, during the driest seasons, equal to a supply of 8,000

families, with 200 gallons per day. The number of inhabitants of Boston may, at this time, be estimated at 96,000 or 16,000 families, of 6 persons each. The average supply of water to each family in Philadelphia in 1835, was 187 gallons. In London, the average daily supply was 180 gallons. Two hundred gallons may be considered a moderate daily supply for each family; the demand for animals and mechanical purposes being taken into the estimate. The Roxbury Aqueduct Corporation supply 2,000 families.

In the opinion of your Committee, it is not for the interest of the City to allow, nor is it believed that it is for the interest of any Company to convey, an inadequate supply of water. The demand for the water will depend, in a great measure, on the certainty of a sufficient supply. The injury to the streets and the inconvenience arising from the laying of pipes is as great in a small supply as in a large, and it is believed that the citizens of Boston will never be satisfied with a supply of water inadequate to all their requirements. It is necessary, then, to provide that the water be conveyed to the City in pipes of sufficient capacity. Messrs. Treadwell, Baldwin, and Hale, as well as Mr. Eddy, recommend, that no less pipes than 22 inches diameter be used in the conveyance of water from Spot Pond to the City, nor is it believed to be for the interest of any Company to lay pipes of a less diameter, since the capacity of a pipe to convey water, is as the square of their diameter; the head being the same, and the obstruction being less, water rises to a higher elevation through a large than through a small pipe. The Committee believing it to be equally for the interest of the City and of the proposed Corporation, to provide that the water shall be conveyed to the City in pipes not less than twenty inches diameter and to guard against accident, or in case of fire that there may be at hand a supply of water, it is therefore provided, that there shall be constructed one or more reservoirs in or near the City, to contain not less than 500,000 gallons. This estimate may be considered too small, as it is equally for the interest of the Corporation and for the City to construct capacious reservoirs.

The free use of the water in case of fire has always been enjoyed by the city, and has always been provided for by all acts of incorporation, and is considered some though an inadequate compensation for the injury done to the streets; and as it is believed to be for the interest of the City to encourage companies to bring into the City an abundant supply of pure water, it is provided that the City shall grant such compensation for the use of water for the public buildings or for ornamental purposes, as may be considered reasonable. The amount of such compensation it is impossible beforehand to estimate. For a copious supply it ought doubtless to be liberal, as it would in the opinion of your Committee promote the health, increase the value of the property belonging to the City, and to individuals, decrease the rate of insurance, diminish the expenses of the fire department, and encourage the establishment of mechanical operations requiring an abundant supply of water.

There can be no doubt that the laying of the pipes or other apparatus through the streets of the City, as well as the repairs thereof, should be executed by the Company under the general supervision of the Board of Aldermen. A reasonable term of time should doubtless be granted to any Corporation bringing water to the City; but, on the other hand, the City should be protected from unnecessary delay which might operate injuriously to her best interest by keeping open the streets of the City, or by preventing other Companies equally or more able to introduce a large supply of water. Three years is believed to be a liberal allowance

of time for this purpose, and it is not supposed that the petitioners require more.

In an act of incorporation granted by the Legislature to the Boston Hydraulic Company in the year 1836, it was provided that 'the said City may at any time purchase of the said Corporation, their franchise and all their personal and real property by paying therefor such a sum as together with their receipts will reimburse the whole amount expended with an annual interest of ten per cent.'

In case the City should assume the Aqueduct to her own use, it is reasonable that a liberal compensation should be made to the Company not only as a just compensation for their trouble, but as an inducement to commence and complete so important a work.

By the act of incorporation granted by the Legislature in the year 1795, it is provided that the Legislature should have the right, if it judged fit, to fix the price of water. That this right should exist somewhere there is no doubt, and it is presumed that it can be placed nowhere more safely than in the hands of the Legislature, and nothing should be introduced into the act to prevent the Legislature from granting to any other Company, at any time a charter to enable it to introduce into the City a supply of water equal to all its requirements.

The Committee beg leave to report a series of conditions on which the leave of the City Council should be granted to the petitioners. All which is respectfully submitted.

For the Committee,

M. BRIMMER, *Chairman.*

The Committee recommend that the assent of the City Council be granted to James C. Odiome and his associates to introduce the waters of Spot Pond into the City on the following conditions, namely :

- 1st. That the supply of water be pure.
- 2d. That the Corporation shall furnish, if needful, all the water which the capacity of said Spot Pond shall be able to furnish, to be conveyed to the City in one or more iron pipes, each not less than twenty inches in diameter.
- 3d. That one or more reservoirs be constructed within two miles of the City, at an elevation of not less than one hundred feet above high tide, and to contain together, not less than five hundred thousand gallons of water.
- 4th. That the use of the water shall be granted to the City for the extinction of fires free of charge; but for the use of the public buildings and establishments, and for ornamental purposes, on such reasonable terms as shall be agreed upon.
- 5th. That the laying of the pipes or other apparatus of such aqueduct, and the repairs thereof, shall be at the expense of the Company, but that the breaking up the pavement or any part of the streets, shall be done under the direction of the Mayor and Aldermen of the City of Boston, or such persons as they shall appoint. And all injury done to the streets or to individuals shall be compensated for by the Water Corporation, under such penalties as the Legislature shall impose.
- 6th. That said aqueduct shall be completed within three years.
- 7th. That the City of Boston shall have the privilege of assuming to their own account and use said aqueduct, its franchise, and all personal and real property, on payment to the Corporation thereof, the cost and charges for the construction of said aqueduct, and the source thereof, together with per cent. thereon, with six per cent. interest, first

deducting any amount received by said Corporation for the use of the water of said aqueduct or the sources thereof. A report to be made annually to the Legislature of the amounts expended and paid by said Corporation.

8th. That nothing in the act of incorporation shall be construed to restrain the Legislature from hereafter regulating the prices of the water to the inhabitants of this City, if the Legislature shall judge fit. Nor shall any thing in said act of incorporation be construed to prevent the Legislature from granting any act of incorporation to any other company or corporation, now or hereafter to be established to convey water into the City of Boston.

Description of the paying water takers in the city of Philadelphia, January 1, 1845. (See page 17.)

No.	Description.	Rate per annum.	No.	Description.	Rate per annum.
48	Water-closets, &c., -	\$1 00	27	Stables, &c., -	30 00
138	Wash pavements, &c., -	2 00	1	Steam Engine, &c., -	31 75
254	Tenements, -	2 50	1	Court, &c., -	32 50
2337	Baths, -	3 00	3	Courts, &c., -	33 00
11	Taverns, &c., -	3 75	1	Mansion House, -	34 00
52	Stables, &c., -	4 00	9	Hotels, &c., -	35 00
9929	Dwellings, &c., -	5 00	4	Steam Engines, &c., -	36 00
1	Stable, &c., -	5 50	2	Steam Engines, &c., -	39 00
35	Dwellings, &c., -	6 00	6	Steam Engines, &c., -	40 00
4	Dwellings, &c., -	7 00	1	Court, &c., -	41 25
86	Courts, &c., -	7 50	1	Court, &c., -	44 00
544	Printing Offices, &c., -	8 00	3	Courts, &c., -	45 00
2	Dwellings, &c., -	8 50	14	Stables, &c., -	50 00
33	Vinegar Yards, &c., -	9 00	1	Hotel, -	53 00
2	Steam Engines, &c., -	9 50	1	Steam Engine, &c., -	54 00
193	Dyers, &c., -	10 00	1	Hotel, -	55 00
1	Dwelling, &c., -	10 50	4	Hotels, &c., -	60 00
4	Marble Yards, -	11 00	1	Hotel, -	61 00
6	Dwellings, &c., -	11 25	1	Hotel, -	64 00
22	Soap-boilers, &c., -	12 00	1	Hotel, -	65 00
38	Dwellings, &c., -	12 50	1	Tavern, &c., -	70 00
4	Taverns, &c., -	13 00	6	Water-wheels, &c., -	75 00
3	Courts, &c., -	14 00	1	Hotel, -	86 00
66	Distilleries, &c., -	15 00	1	Hotel, -	88 00
5	Hatteries, &c., -	16 00	1	Laboratory, -	90 00
3	Stables, &c., -	17 00	1	Hotel, -	96 50
3	Courts, &c., -	17 50	1	Bath-House, -	110 00
5	Courts, &c., -	18 00	2	Baths, &c., -	125 00
39	Taverns, Courts, &c., -	20 00	1	Naval Asylum, -	140 00
1	Steam Engine, &c., -	20 50	1	Brewery, -	125 50
11	Courts, &c., -	22 50	1	Brewery, -	128 00
2	Stables, &c., -	24 00	1	Bath-House, -	138 00
28	Sugar-Houses, &c., -	25 00	2	Sugar-Houses, -	150 00
1	Court, &c., -	26 00	1	Gas-Works, -	400 00
4	Taverns, &c., -	27 50	1	Sugar-House, -	750 00
1	Tavern, &c., -	29 50	14021	Total, \$76,055.25	
Southwark has			2,202	takers producing \$12,570.18	
Moyamensing			635	"	3,602.42

Statement of the Debt of the City of Boston.

By a standing ordinance, the proceeds of bonds and mortgages held by the city, the sales of public lands, the balance in the treasury at the close of the year and a special appropriation of three per cent. of the debt, the same not being less than \$ 50,000, is applied by the city to the payment of the principal of the debt. The interest has always been paid by taxes, or the ordinary receipts of the city. The following statement exhibits the amount of the city debt, its increase or decrease, and the appropriations to pay the principal, and the annual interest, for each year, ending with date since it was first commenced, in 1823.

Year.	Debt.	Increase or decrease.	An. Interest.	Special approp.
1823	\$ 103,550.00	— First city debt.		
1824	207,050.00	\$ 93,500.00 inc.		
1825	305,873.00	98,823.85 "		
1826	364,800.32	58,926.47 "		
1827	1,011,775.00	646,974.68 "		
1828	949,350.00	62,425.00 dec.		
1829	911,850.00	37,500.00 "		
1830	891,930.75	19,919.25 "		
1831	880,830.75	11,600.00 "		
1832	817,123.93	63,206.72 "		
1833	940,358.28	33,234.35 inc.		
1834	1,078,088.28	138,730.00 "		
1835	1,147,398.97	69,310.69 "	\$ 58,804.19	\$ 15,000
1836	1,264,400.00	117,001.03 "	63,195.50	15,000
1837	1,497,200.00	232,800.00 "	77,355.50	15,000
1838	1,491,400.00	5,800.00 dec.	76,456.50	15,000
1839	1,596,600.00	105,200.00 inc.	81,522.50	15,000
1840	1,698,232.56	101,632.56 "	86,588.95	45,000
1841	1,663,800.00	34,432.56 dec.	84,187.00	45,000
1842	1,594,700.00	69,100.00 "	80,717.00	50,000
1843	1,518,700.00	76,000.00 "	77,677.00	50,000
1844	1,423,800.00	84,900.00 "	72,174.50	50,000

Add the proposed four and a half millions water debt to this, and it will amount to about \$ 6,000,000, the annual interest of which will be, at five per cent., \$ 300,000. This will be equal to about *one half the amount of all the taxes assessed last year*, after deducting \$ 122,174, assessed to pay the principal and interest on the existing city debt.

Number of buildings in Boston, according to the State valuation in 1831, and 1841.

DESCRIPTION.	In 1831.	In 1841.
Dwelling-houses, ...	6,766	8,902
Shops within and adjoining dwellings, ...	719	943
Other Shops, ...	587	631
Distill-houses, ...	20	17
Warehouses and Stores, ...	1,093	1,397
Breweries and Rope-Walks, ...	6	
Mills, ...		2
Barns, ...	367	438
All other buildings of \$ 20, and upwards, ...	148	69

Memoranda, concerning East Boston, furnished the Legislative Committee by Mr. Lamson. Present number of inhabitants, 4,500; dwelling-houses, 1,200; buildings erected last year, 300; now erecting, 150; in contemplation, 150. Real estate valued last year, \$1,317,000, which was taxed, \$7,902. A steam cotton-mill, a steam flouring-mill, and an extensive machine-shop are to be erected this year.

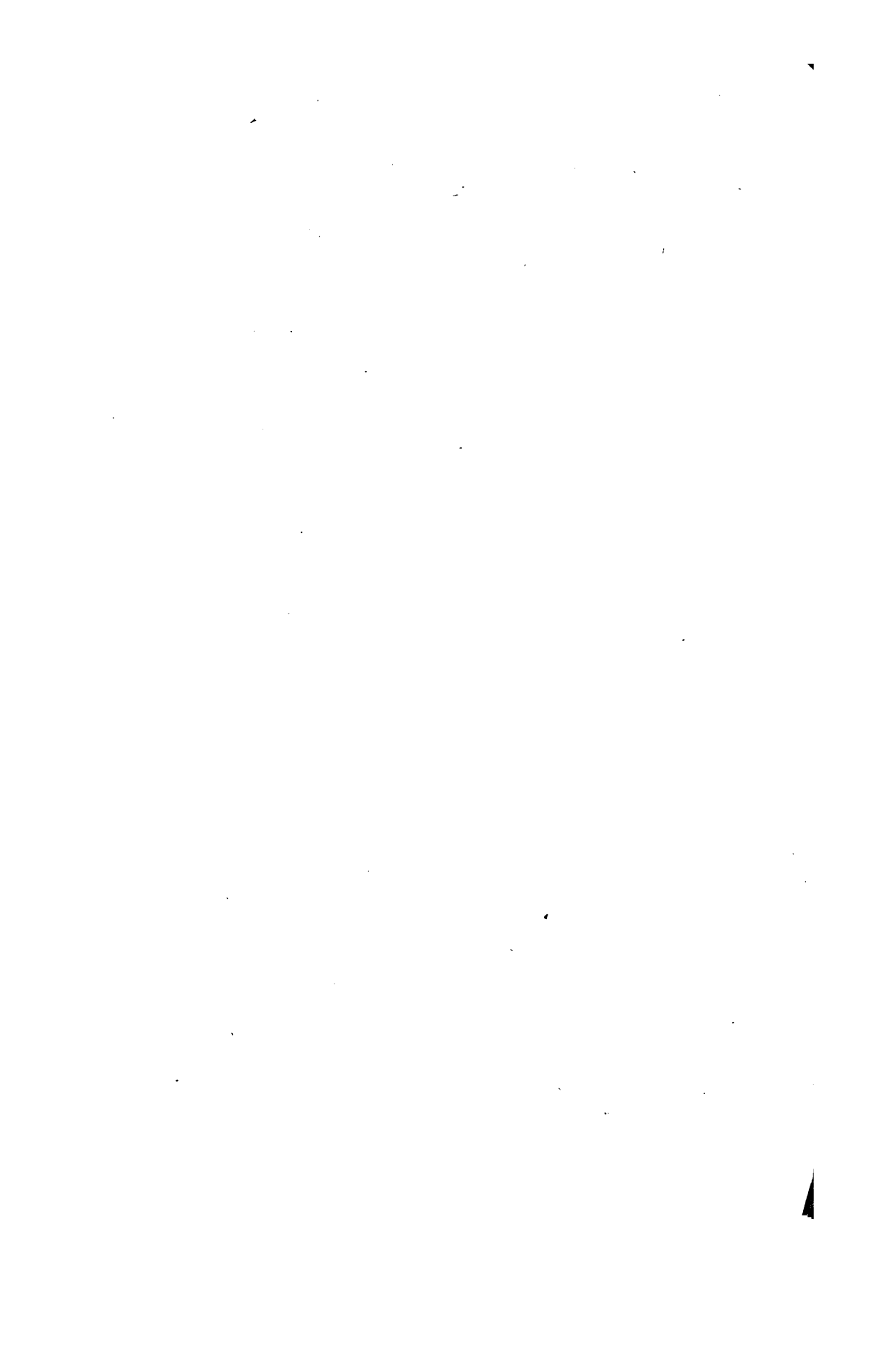
Description of the paying water takers in New York, Nov. 1844.

PRIVATE DWELLINGS.		MISCELLANEOUS TAKERS.	
No.	Rate per Annum.	No.	Amount per Annum.
944	\$ 5.00	118 Steam Engines, . . .	\$ 5,959.50
84	6.00	127 Stables, ...	2,039.00
13	6.66	20 Bathing Establishments, .	1,318.00
193	7.00	317 Dwellings and Stores, .	4,069.25
5	7.50	59 Public Houses, ...	3,467.50
982	8.00	168 Bar Rooms, ...	1,925.50
738	9.00	85 Refectories, ...	1,688.00
1,826	10.00	234 Boarding Houses, . . .	3,975.50
4	10.50	69 Public Institutions, . .	1,567.00
197	11.00	55 Slaughter Houses, . . .	699.50
1,862	12.00	609 Stores and Offices, . .	7,571.00
34	13.00	259 Manufacturing Purposes, .	7,000.00
42	14.00	104 Mechanical Purposes, .	1,512.00
46	15.00	15 Fountains, ...	307.00
16	16.00	76 Steam Boats, ...	5,627.22
6	17.00	7 Hair Dressing Rooms, . .	51.00
18	18.00	52 Street Sprinklers, Filling	
13	20.00	Ships, &c., ...	1,602.76
1	25.00	34 " " " " " "	334.75
1	27.00	51 Building Purposes, . .	829.00

The number of private dwellings was 6,175; miscellaneous, 2,469. The gross amount, per annum, of private dwellings, \$62,491.08; miscellaneous, \$51,542.92. Total, \$114,034.06.

Statement, exhibiting the number of gallons of water supplied by the Water Works of Philadelphia, each quarter of the year, ending April 30th, June 30th, October 31st, and December 31st; and the average for the whole year. (See page 17.)

Year.	April 30th.	June 30th.	October 31st.	December 31st.	Average.
1841	3,154,174	4,487,751	5,677,405	4,363,191	4,445,630
1842	3,679,800	4,468,328	5,204,228	3,837,505	4,279,480
1843	3,700,000	4,520,000	5,304,300	4,165,203	4,422,400
1844	3,654,517	5,445,291	6,949,911	4,872,102	5,330,445





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